

THE HYMENOSOMATIDAE (CRUSTACEA: DECAPODA: BRACHYURA) OF NEW CALEDONIA, WITH DESCRIPTIONS OF TWO NEW GENERA AND TWO NEW SPECIES

P.K.L. NG AND B. RICHER DE FORGES

Ng, P.K.L. & Richer de Forges, B. 1996 07 20: The Hymenosomatidae (Crustacea: Decapoda: Brachyura) of New Caledonia, with descriptions of two new genera and two new species. *Memoirs of the Queensland Museum* 39(2): 263-276. Brisbane. ISSN 0079-8835.

All 5 previously described species of hymenosomatids were examined. *Micas* gen. nov. is established for *Elamena minuta* A. Milne Edwards, 1873, and *Micas falcipes* sp. nov., whilst *Odiomaris* gen. nov. is established for *Elamena pilosa* A. Milne Edwards, 1873. Specimens previously referred to *E. truncata* (Stimpson, 1858) are here described as *Elamena vesca* sp. nov. □ *Brachyura, Hymenosomatidae, New Caledonia, Indo-West Pacific.*

Ng, P.K.L., Department of Zoology, National University of Singapore, Kent Ridge, Singapore 119260, Republic of Singapore; Bertrand Richer de Forges, Department of Oceanography, ORSTOM, BP A5 Noumea, Nouvelle Calédonie; received 1 August 1995.

Five hymenosomatid crabs have been reported from New Caledonia: *Elamenopsis lineata* A. Milne Edwards, 1873, *Elamena truncata* (Stimpson, 1858), *Halicarcinus minutus* (Milne Edwards, 1873), *Halicarcinus keijibabai* (Takeda & Miyake, 1971) and *Amarinus pilosus* (Milne Edwards, 1873) (Lucas, 1980).

While the first author was revising the hymenosomatids of Southeast Asia (Ng & Chuang, 1996), the second author provided a collection of 6 species of New Caledonian hymenosomatids. The study of this material, as well as the types of *Elamenopsis lineata* and *Elamena minuta*, resulted in a reappraisal of the taxonomy of the New Caledonian Hymenosomatidae. *Halicarcinus minutus* and *Amarinus pilosus* are referred to new genera, *Micas* and *Odiomaris*, respectively. They both differ markedly from *Halicarcinus* White, 1846, and *Amarinus* Lucas, 1980, respectively. A new species of *Micas* is also described. Comparisons with *Elamena truncata* (Stimpson, 1858) from Taiwan also show that *E. truncata* A. Milne Edwards, 1873, is separate. We review the 5 previous species, including necessary new taxa; 2 further New Caledonian species are added by Davie & Richer de Forges (1996).

Specimens examined are deposited in the Queensland Museum (QM), Brisbane, Australia; Muséum national d'histoire naturelle (MNHN) Paris, France; Amsterdam Museum (ZMA), The Netherlands; and Zoological Reference Collection (ZRC), Department of Zoology, National University of Singapore. Measurements provided are of the carapace width and length respectively. G1 and G2=♂ first and second gonopods, respectively. Terminology follows Melrose (1975).

SYSTEMATICS
Class CRUSTACEA
Order BRACHYURA
Family HYMENOSOMATIDAE
Elamenopsis A. Milne Edwards, 1873

Elamenopsis A. Milne Edwards, 1873: 324; Lucas, 1980: 190 (partim).

TYPE SPECIES. *Elamenopsis lineatus* A. Milne Edwards, 1873, by monotypy.

REMARKS. *Elamenopsis* contains *E. lineata* and *E. ariakensis* (Sakai, 1969). Lucas (1980) synonymised *Neorhynchoplax* Sakai, 1938, with *Elamenopsis*. Ng & Chuang (1996) redefined *Elamenopsis*, restricting it to species with a unilobed rostrum, laterally oval carapace and short ambulatory legs; and resurrecting *Neorhynchoplax* Sakai, 1938, for the other *Elamenopsis* species recognised by Lucas (1980).

Elamenopsis lineata A. Milne Edwards, 1873
(Fig. 1)

Elamenopsis lineatus A. Milne Edwards, 1873: 324, pl. 18 fig. 4; Kemp, 1917: 250; Tesch, 1918: 26, pl. 1 fig. 5, 5a-c; Serène & Umali, 1970: 58, pl. 5 fig. 11. *Elamenopsis lineata*: Lucas, 1980: 192, figs. 3j, 5j, 8e, 10j; Chuang & Ng, 1994: 87; Ng & Chuang, 1996.

MATERIAL EXAMINED. HOLOTYPE MNHN B651 ♀ (2.6 x 2.0 mm), Dotio, New Caledonia, M. Batema. ZMA uncat., 1 ♂ (3.8 x 2.8 mm), Sulawesi, Indonesia, Siboga Expedition. QM W2341, ♂, 2 ♀, S of Dunwich, SEQ. 15.7.1962, F. Vohra. ZRC 1994.4242, ex. QM W2337, ♂, 2 ♀, S of Dunwich, SEQ. 12.7.1962, F. Vohra.

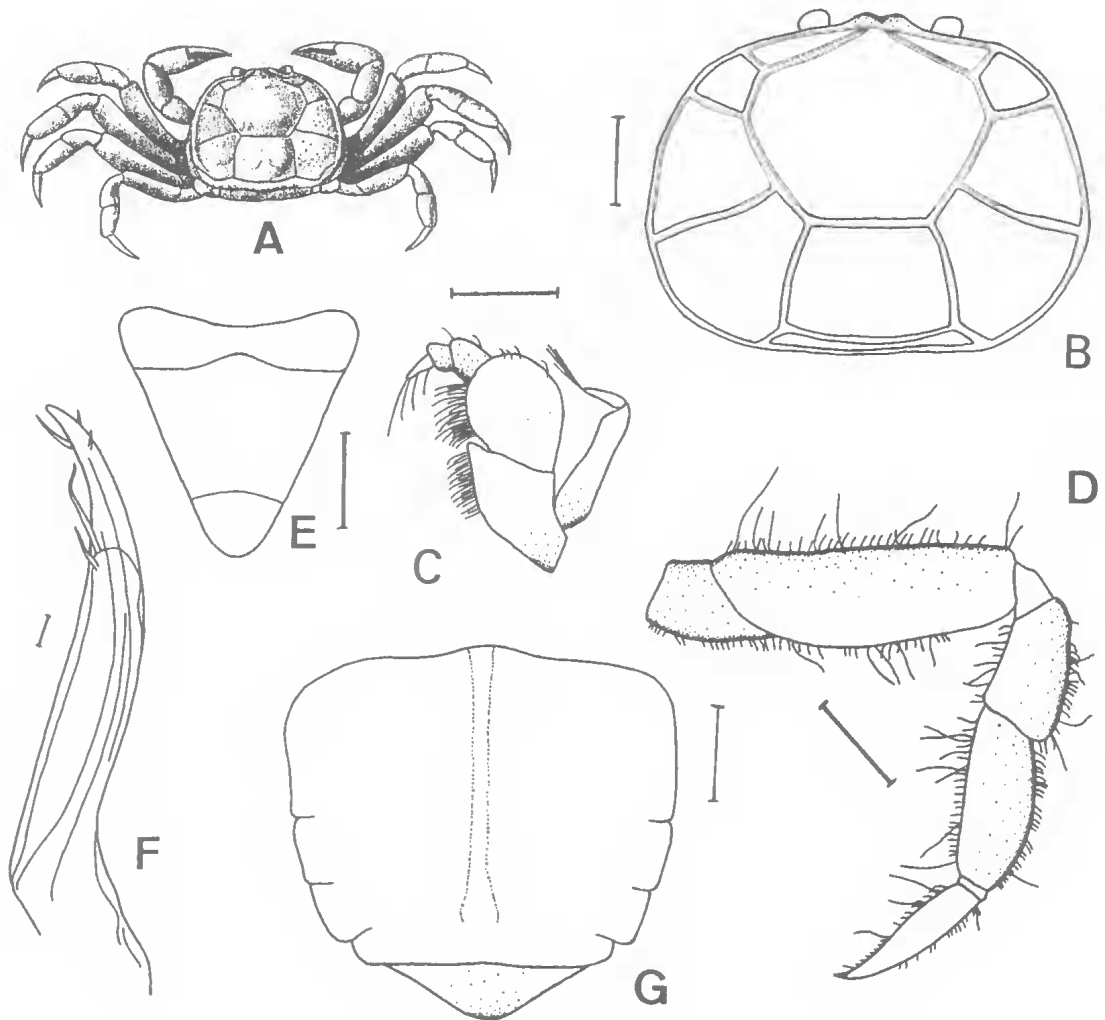


FIG. 1. *Elamenopsis lineata*. A, holotype ♀ (after Milne Edwards, 1873: pl. 18 fig. 4). B, holotype ♀ (MNHN 651), New Caledonia. C-F, ♂ (2.7 x 2.0 mm) (QM W2341) (after Ng & Chuang, 1996). G, ♀ (3.4 x 2.5 mm) (ZRC 1994.4242) (after Ng & Chuang, 1996), Australia. A, overall view. B, dorsal view of carapace. C, left third maxilliped. D, right third ambulatory leg. E, ♂ abdomen. F, left G1. G, ♀ abdomen. Scales: A-F = 0.05 mm. G = 0.5 mm.

REMARKS. This species was treated in detail by Ng & Chuang (1996). Milne Edwards (1873) described it from the Dotio river, New Caledonia, but it has not been reported from there since.

DISTRIBUTION AND HABITAT. New Caledonia, Australia, Sulawesi (Tesch, 1918) and Philippines. Milne Edwards (1873) reported the species from a brackish water habitat while Tesch (1918) reported his specimen from coral reefs, which record was questioned by Lucas (1980)

and Ng & Chuang (1996). Lucas (180: 193) noted that the species can be common on muddy substrates in Australia.

Halicarcinus White, 1846

Halicarcinus White, 1846: 178; Lucas, 1980: 176 (complete synonymy).

TYPE SPECIES. *Cancer planatus* Fabricius, 1775, by original designation.

REMARKS. *Halicarcinus minutus* (A. Milne Edwards, 1873) [= *Micas* gen. nov. herein] and *H. keijibabai* (Takeda & Miyake, 1971) have been reported from New Caledonia. Lucas (1980) redefinition of *Halicarcinus* is followed here.

Halicarcinus keijibabai (Takeda & Miyake, 1971) (Fig. 2)

Rhynchoplax keijibabai Takeda & Miyake, 1971: 165, figs 1, 2.

Halicarcinus keijibabai: Lucas, 1980: 164.

MATERIAL EXAMINED. ZRC 1994.4283, ♂, intertidal region, low tide at OUEMO, Nouméa, New Caledonia, 2.7.1992, B. Richer de Forges.

REMARKS. This species was described from New Caledonia (1 ♂ and 1 ♀) (Fig. 2A, B) and has not been reported elsewhere. Our ♂ agrees with Takeda & Miyake's (1971) detailed description and figures. Characters (e.g. G1 and ♂ abdomen) not figured by Takeda & Miyake (1971) are illustrated here. *Halicarcinus keijibabai* is very close to *H. coralicola* (Rathbun) but the postocular tooth is less pronounced, the base of the rostrum is fused with the postocular lobes forming a broad band above the eyestalks, the anterior lateral angle lacks an acute tooth, the subhepatic/pterygostomial regions have only 1 (vs. 3) teeth, and most significantly, the G1 is straighter and not medially curved (Fig. 2G). Other differences in the carapace structure and form of the ambulatory dactylus noted by Takeda & Miyake (1971: 168) however, are subject to variation and cannot be used. Lucas (1980: 164) noted that the medial rostral lobe in *H. coralicola* lacks long terminal setae, but this is incorrect as this character is present in both species.

DISTRIBUTION AND HABITAT. New Caledonia. Under rocks in the intertidal area, in waters no more than 1 m deep. Same habitat for *H. coralicola* in SE Asia and Japan (Chuang & Ng, 1994; Ng & Chuang, 1996).

***Micas* gen. nov.**

TYPE SPECIES. *Elamena minuta* A. Milne Edwards, 1873.

DIAGNOSIS. Carapace rounded; dorsal surface smooth, grooves all well delineated, reaching to lateral margins of carapace; cardiac region with distinct longitudinal groove. Eyes visible dorsally. Rostrum trilobed, lobes short; median lobe

may or may not be separated from carapace by crest. Ambulatory legs long, slender; dactylus with 2 subterminal teeth. Male abdominal segments 3 and 4 fused; ♀ abdominal segments 2-5 fused. G1 slender distally, stout basally, twisted medially.

REMARKS. Kemp (1917) commented that *Elamena minuta* should be placed in *Halicarcinus*. It has been collected only twice previously (A. Milne Edwards, 1873; Takeda & Nonumura, 1976) and ♂♂ have not been described.

H. minutus has few of the important features of *Halicarcinus*. The complete longitudinal cardiac groove on the carapace is evident in no other hymenosomatid, although *H. hondai* (Takeda & Miyake) has a partial one (Lucas, 1980: 184, fig. 3H). The G1 of *H. minutus* is twisted twice, once medially and again, more strongly 3/4 from the base, with the tip slightly bifurcated. The ambulatory dactyli of *M. minutus* are very elongate, much longer than for other *Halicarcinus* species and have only two subterminal teeth, lacking the series of sharp teeth present on many *Halicarcinus* species (with the exception of the enigmatic *H. filholi* (De Man)). Like most *Elamena*, the ♂ abdomen also has segments 3 and 4 fused, quite unlike most *Halicarcinus* in which all the segments are free. The same is true for the ♀ abdomen, which in *M. minutus* has segments 2-5 completely fused, with no sutures visible (most ♀♀ of *Halicarcinus* have all segments free). Unlike both *Halicarcinus* and *Elamena*, the ♂ chelipeds are also short and not elongate. The carapace of *H. minutus* also bears a close resemblance to many species of *Neorhynchoplax* s.s., but the third maxillipeds are quadrate, covering at least 3/4 of the mouthfield.

Micas falcipes sp. nov., is also described from New Caledonia. A NE Australian species, *H. afecundus* Lucas, 1980, is also assigned to *Micas*. It has the same short trilobed rostrum, longitudinal groove on the cardiac region, elongate ambulatory dactyli and ♀ abdominal condition (segments 2-5 fused) as *M. minutus*.

ETYMOLOGY. Latin *mica*, grain; for the small size of the type species. Gender masculine.

Micas minutus (Milne Edwards, 1873)
(Fig. 3)

Elamena minuta Milne Edwards, 1873: 324 (partim), pl. 18 fig. 5.

Elamena minuta: Tesch, 1918: 21 (partim).

Halicarcinus minutus: Takeda & Nonumura, 1976: 65,

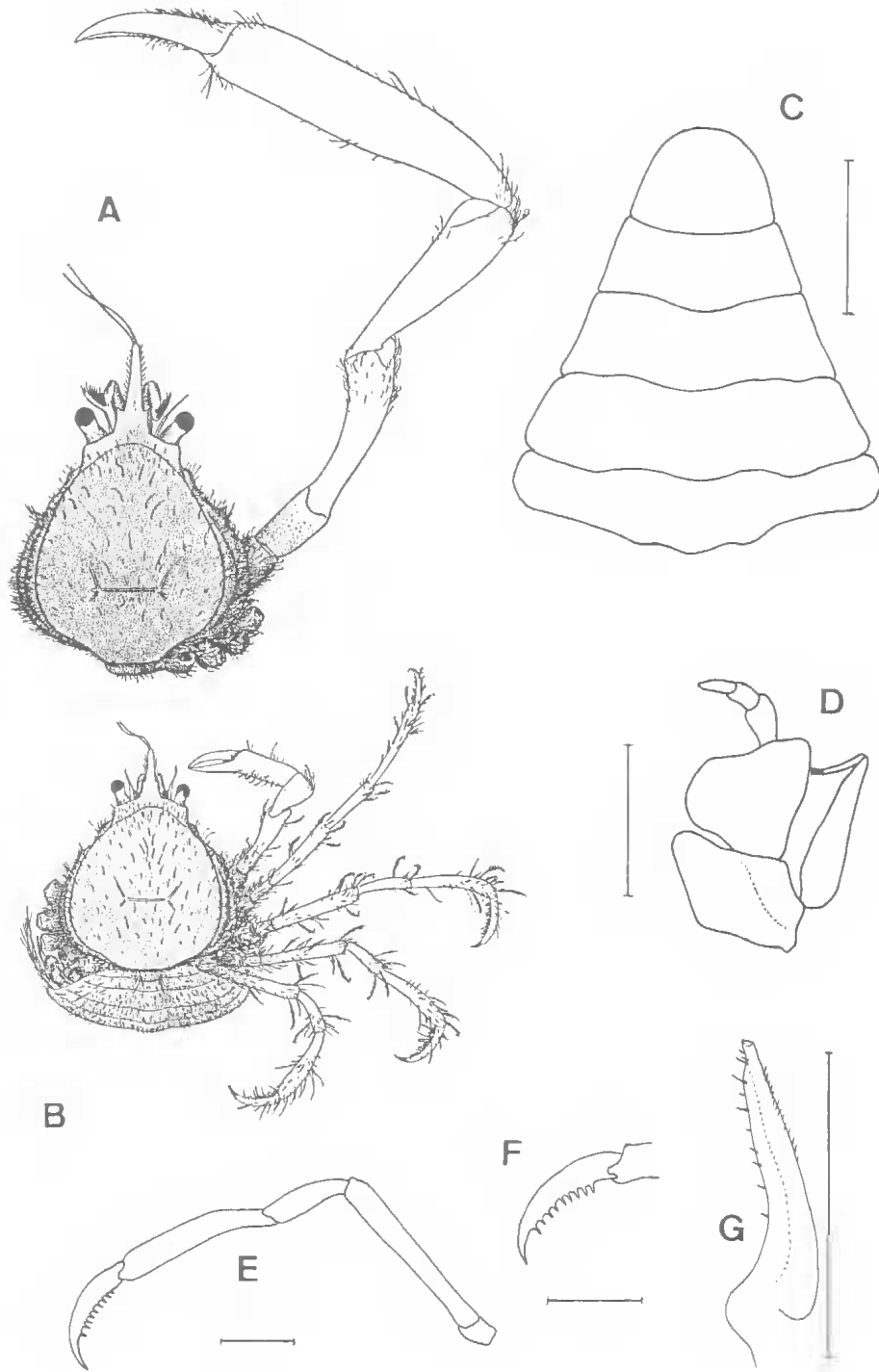


FIG. 2. *Halicarcinus keijibabai*. A, holotype ♂ (1.7 x 2.0 mm [excluding rostrum]) (after Takeda & Miyake, 1971, fig. 1). B, allotype ♀ (1.7 x 1.8 mm [excluding rostrum]) (after Takeda & Miyake, 1971, fig. 2). C-G, ♂ (2.3 x 2.7 mm) (ZRC 1994.4283), New Caledonia. A, B, overall view. C, ♂ abdomen. D, left third maxilliped. E, left third ambulatory leg. F, left third ambulatory dactylus. G, left G1. Scales = 0.5 mm.

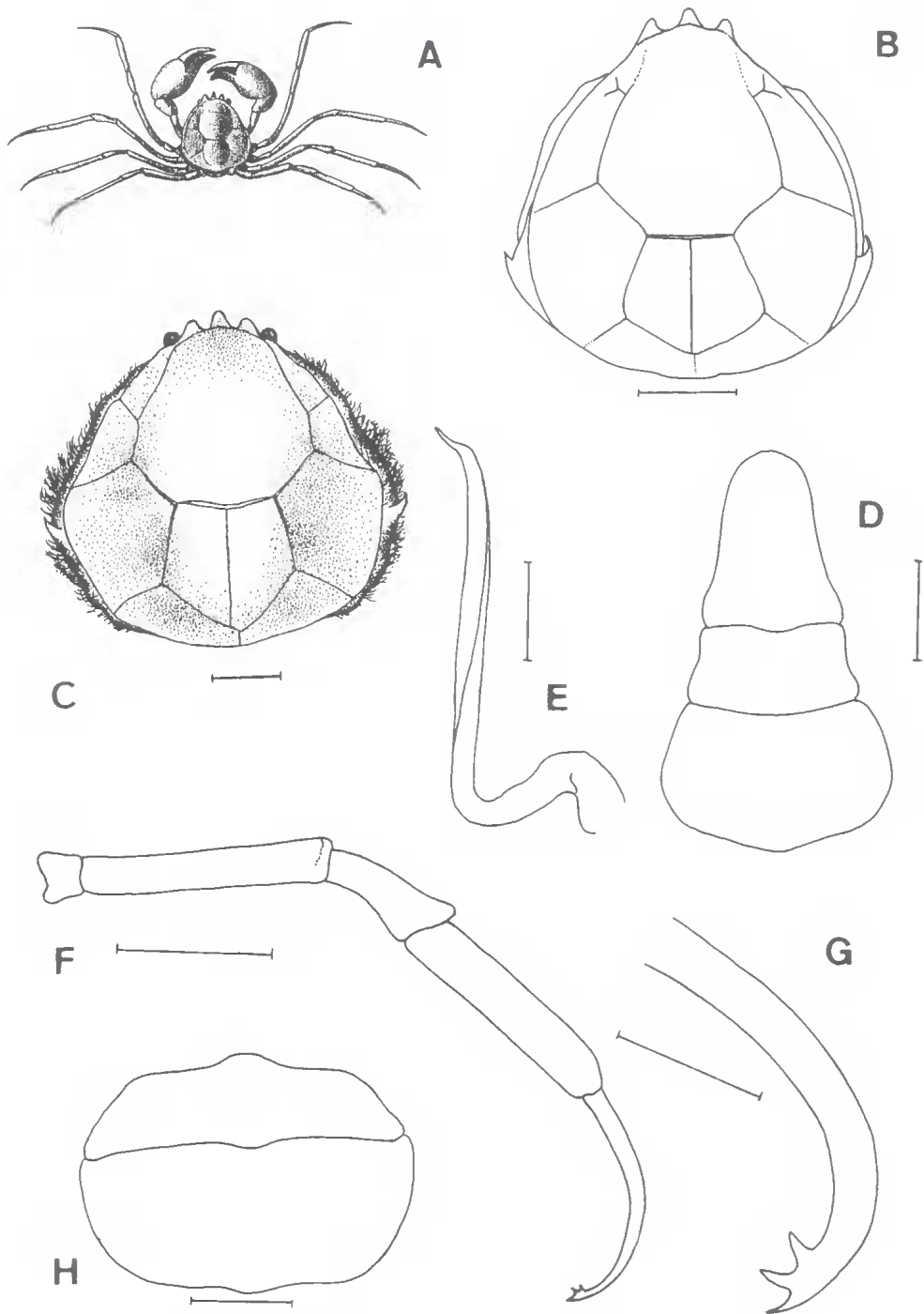


FIG. 3. *Micas minutus*. A, B, D, E, lectotype ♂ (3.4 x 3.5 mm) (MNHN B656Sa) (A, after Milne Edwards, 1873, pl. 18 fig. 5). C, ♀ (after Takeda & Nonumura, 1976, fig. 2). F-H, ♀ (2.9 x 2.6 mm) (ZRC 1994.4250b). A, overall view. B, C, carapace. D, ♂ abdomen. E, left G1. F, right third ambulatory leg. G, left third ambulatory dactylus. H, ♀ abdomen. Scales: B, C, F, H = 1.0 mm. D, G = 0.5 mm. E = 0.25 mm.

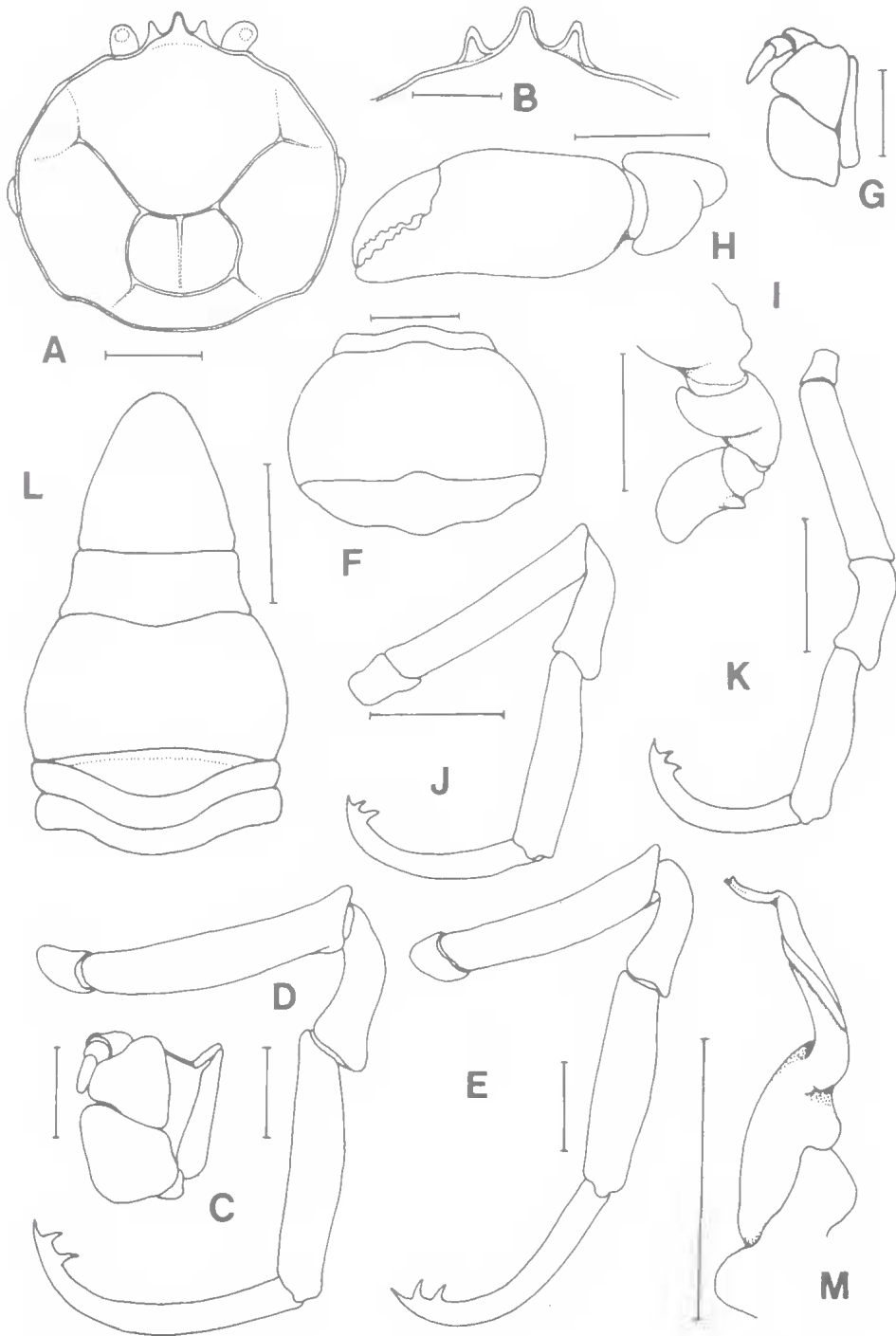


FIG. 4. *Micas falcipes* sp. nov. A-E, paratype ♀ (2.9 x 2.6 mm) (ZRC 1196.477). F, paratype ♀ (3.1 x 2.6 mm) (MNHN B24915b). I-M, paratype ♂ (2.8 x 2.7 mm) (MNHN B24915a). A, carapace. B, rostrum. C, G, left third maxilliped. D, J, right third ambulatory leg. E, K, right fourth ambulatory leg. F, ♀ abdomen. H, left chela. I, carpus and merus of left cheliped. L, ♂ abdomen. M, left G1. Scales: A, F, G, J-M = 1.0 mm. B-E, H, I = 0.5 mm.

fig. 2; Lucas, 1980: 177 (partim); Chuang & Ng, 1994: 88 (partim).

MATERIAL EXAMINED. LECTOTYPE. MNHN-B656Sa, ♂ (3.4 x 3.5 mm), New Caledonia, M. Marie. OTHER MATERIAL: ZRC 1993.6512, ♀ (3.5 x 3.3 mm), ZRC 1994.4250a, ♀ (ovigerous) (4.1 x 3.9 mm), intertidal region, low tide at OUEMO, Nouméa, New Caledonia, 2.7.1992, B. Richer de Forges.

REMARKS. *Elamena minuta* was described briefly by Milne Edwards (1873) and although he did not indicate the number of specimens he had examined, he provided measurement of one specimen 3.0 mm in carapace width (sex not stated). His figure is very schematic and provides almost no information on the carapace lateral margins, third maxillipeds, ambulatory dactylus, abdomen or GI. The condition of the cardiac region and posterior lateral spine was neither figured or mentioned. In the MNHN are three dried specimens which had been labelled as *Elamena minuta*. All were collected by M. Marie and labelled as types. The largest specimen (our lectotype), a ♂ 3.4 by 3.5 mm, carries a label indicating that it was the specimen figured by Milne Edwards. The other two specimens (paralectotypes) belong to *M. falcipes* sp. nov. The lectotype is still in good condition and shows a clearly defined longitudinal groove on the cardiac region and well developed posterior lateral spines.

Takeda & Nonumura (1976: fig. 2) figured a ♀ (Fig. 3B) with a prominent posterior lateral spine; their specimen agrees very well with the lectotype ♂.

DISTRIBUTION AND HABITAT. New Caledonia. Under rocks in the intertidal zone, along the shore or on the fringing reef of small coral islands.

Micas falcipes sp. nov.
(Fig. 4)

Elamene minuta Milne Edwards, 1873: 324 (partim).

Elamena minuta: Tesch, 1918: 21 (partim).

Haliscarcinus minutus: Lucas, 1980: 177 (partim);

Chuang & Ng, 1994: 88 (partim).

MATERIAL EXAMINED. HOLOTYPE MNHMB25300 (ex ZRC 1993.6511), ♂ (3.2 x 3.1 mm), intertidal region, low tide at OUEMO, Nouméa, New Caledonia, 2.7.1992, B. Richer de Forges. PARATYPES ZRC 1994.4250b, ♂ (3.5 x 3.3 mm), ♀ (ovigerous) (2.9 x 2.6 mm), MNHN B24915b, ♂ (2.8 x 2.7 mm), ♀ (3.1 x 2.6 mm), intertidal region, low tide at OUEMO, Nouméa, New Caledonia, 2.7.1992, B.

Richer de Forges. PARATYPE, ZRC 1996.477, ♀ (2.9 x 2.6 mm), station 10, shallow water in bay, OUEMO, Nouméa, New Caledonia, 19.4.1995, B. Richer de Forges. MNHN B656Sb, 2 ♂ (2.5 x 2.3 mm, 2.5 x 2.3 mm), New Caledonia, M.E. Marie.

DESCRIPTION. Carapace width (at posterior pair of angular lobes) greater than length; dorsal surface almost flat, smooth, gastroduodenal grooves deep, distinct; cervical and thoracic grooves shallow; cardiac region with longitudinal groove which is deeper on anterior half; pterygostomian region with low knob. Anterolateral margin with low angle, never spiniform; posterolateral margin gently convex; with distinct, unarmed swelling on posterior lateral angle. Rostrum trilobate, lobes subequal in size; tip of lateral below tip of median lobe; median lobe appears continuous with the dorsal carapace surface, crest separating it from carapace very low. Eyes visible dorsally.

Third maxillipeds almost completely cover mouth field when closed; ischium distinctly shorter than merus along outer lateral edge; inner lateral edge of merus lined with fine setae, inner lateral margins meeting when closed; palp longer than merus; exopod longer than merus, reaching distal edge of merus.

Chelipeds equal, stouter than ambulatory legs; surfaces smooth; fingers c. 1/3 length of inflated palm; fingers laterally flattened, slightly curved inwards; cutting edges serrated, with quadrangular tooth at proximal portion of dactylus; tips of fingers sharp, pointed.

Ambulatory legs slender, cross-section of merus subcircular; distal dorsal edge of merus and carpus with well developed but rounded tooth; dorsal margin of propodus convex, median height (measured from dorsal to ventral margins) distinctly higher than distal and proximal heights; margin of dactylus lined with dense, fine setae; strongly curved, tip hooked, with 2 subequal subterminal teeth; subdistal margin smaller and less distinct tooth in between tip and subterminal tooth.

♂ abdomen triangular; segments 3 and 4 completely fused without trace of sutures; all other segments free; telson more than 2 times length of segment 6, lateral margins gently convex. GI slender, elongate, twisted medially. Female abdomen rounded, segments 2-5 fused, without trace of sutures, telson c. half width of fused segments 2-5, lateral margins sinuous; lateral margins of fused segments 2-5 tapering gradually towards segment 1.

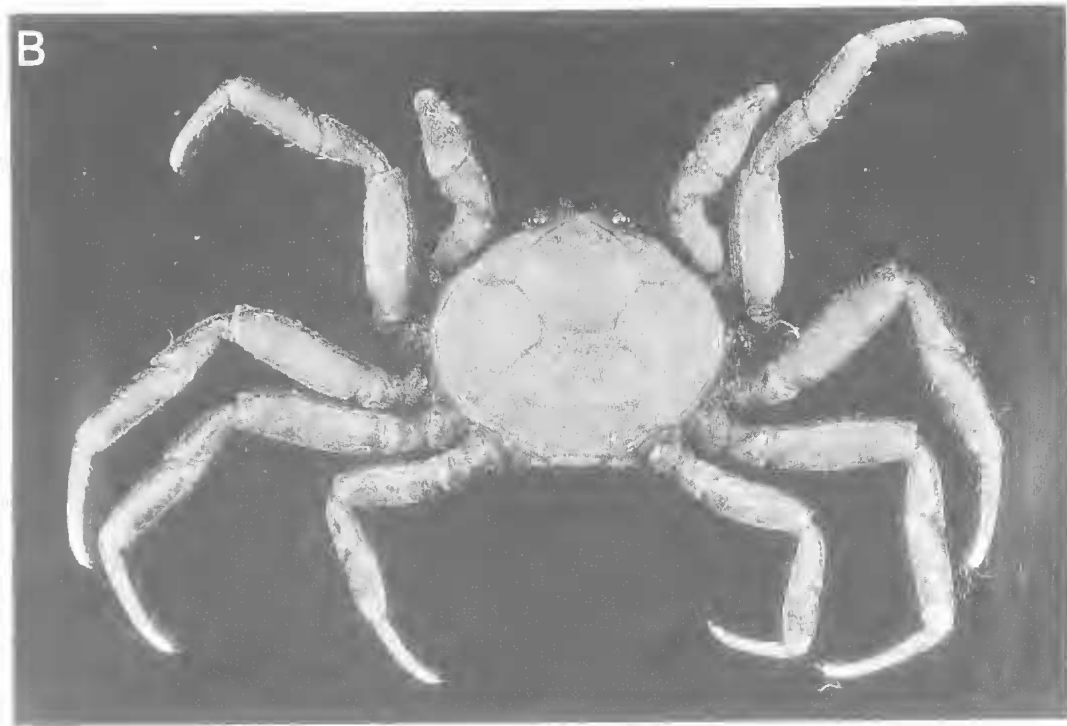
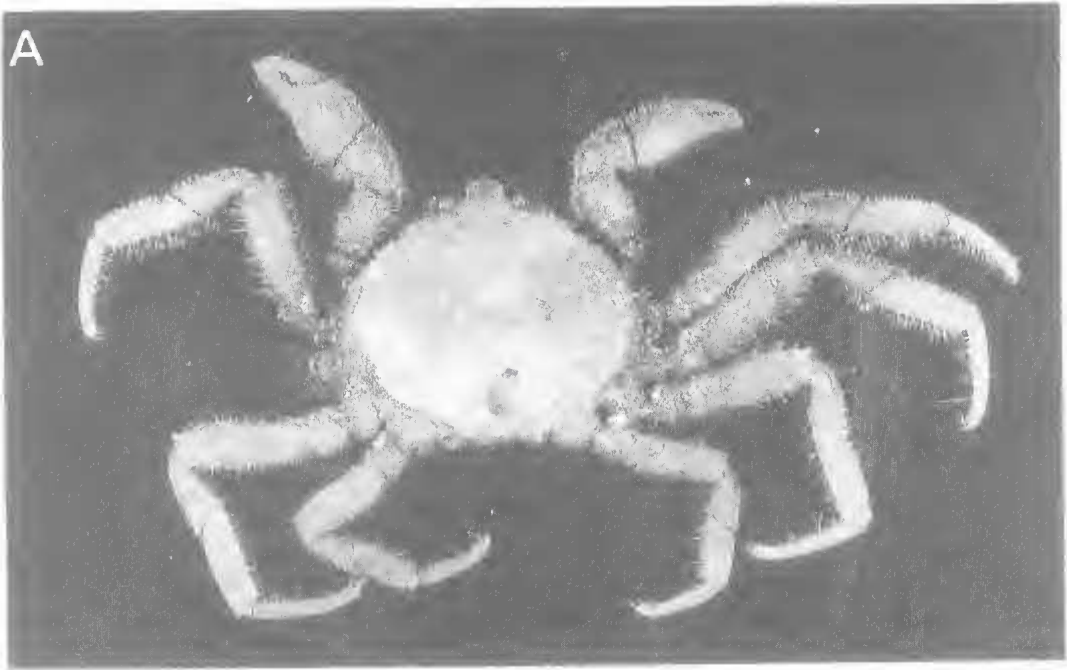


FIG. 5. *Odiomaris pilosus*. A, ♂ (11.8 x 10.1 mm) (ZRC 1994.4251a). B, ♀ (8.8 x 7.8 mm) (ZRC 1994.4251b), New Caledonia.

REMARKS. *Micasfalcipes* sp. nov. resembles *M. minutus* but can be separated by: the rounder carapace (mainly because the anterolateral margins are more convex), a posterior lateral swelling (sometimes dentiform, never spiniform), the median rostral lobe continuous with the carapace surface (vs. separated by a crest), the distal angle of the dorsal margin of the ambulatory merus more strongly produced, the dorsal margin of the ambulatory propodus convex, the ambulatory dactyli proportionately stouter and shorter, the ♂ telson proportionately longer, with the lateral margins gently convex and the G1 proportionately shorter. The posterior lateral swelling in *M. falcipes* seems to be reliable in separating *M. minutus*. *M. minutus* has well-developed, sharp spines, whereas *M. falcipes* is never spiniform.

DISTRIBUTION AND HABITAT. New Caledonia. One specimen was collected under a sponge in 0.2m of water. The others are from shallow waters in the intertidal region. It is typically brown to black in life, with the posterior part of the postbranchial region sometimes white.

ETYMOLOGY. Latin *falx* and *pes*, for the sickle-shaped ambulatory dactylus. A noun in apposition.

Odiomaris gen. nov.

TYPE SPECIES. *Elamena pilosa* Milne Edwards, 1873.

DIAGNOSIS. Carapace laterally oval, distinctly broader than long; grooves on dorsal surface well-defined. Third maxilliped quadrate; anteroexternal angle of merus rounded, not auriculiform; ischium broad, expanded. Ambulatory legs relatively short, dactylus with one weak subterminal tooth. Male abdomen evenly triangular; telson triangular, lateral margins almost straight, base with distinct, movable intercalated plates. G1 relatively slender, distal part with well-developed pectinated process and a smaller, weakly chitinised process.

REMARKS. Lucas (1980) referred *E. pilosa* Milne Edwards, 1873, to *Amarinus* (type *E. ? lacustris* Chilton), with all congeners from brackish or freshwater. Lucas (1980: 198) noted that the G1 of *Amarinus* is '... stout, curved at base, otherwise with little curvature, terminal portion with fine setae in tufts or scattered, terminating in one or several lobes'. Holthuis (1968), however, had figured the G1 of *E. pilosa* (as a species of *Halicarcinus*) which is unlike that of any known

Amarinus, being distinctly more slender, the distal part possessing 2 distinct processes. Ten species of *Amarinus* are known (Lucas, 1980; Lucas & Davie, 1982; Ng & Chuang, 1996) and all have very similar G1s, being short and stout.

Comparing *E. pilosa* with *Amarinus* reveals several other differences. In *E. pilosa* the anteroexternal angle of the merus of the third maxilliped is not auriculiform (vs. distinctly auriculiform), the ♂ abdomen is shaped differently, the structure (including the telson with the almost straight lateral margins) being evenly triangular (vs. broadly triangular abdomen, the telson being semicircular), G1 is more slender, the distal part having a well-developed pectinated process and a smaller, weakly chitinised process (vs short, stout and without the two pectinated processes). *E. pilosa* also differs in having the carapace laterally oval (vs. circular to subcircular) and the inner lateral margin of the ischium of the third maxilliped is broad and expanded (vs. narrow). While *E. pilosa* has the intercalated plates at the base of the telson, which is distinctive of *Amarinus* (cf. Lucas, 1980), the differences noted here require generic separation. This decision is further validated by a second species from New Caledonian estuaries (Davie & Richer de Forges, 1996). Intercalated plates on the ♂ telson is a character shared by the closely related *Amarinus*, *Odiomaris*, and the monospecific Australian *Hymenosoma* Lucas, 1980.

In *E. pilosa*, the infraorbital tooth is well-developed and visible in dorsal view, whereas *Amarinus* typically has the infraorbital tooth weak or almost indiscernible, and not visible in dorsal view. Similarly the dorsal carapace grooves of *E. pilosa* are well-defined, with the posterior ones reaching the edge of the carapace, and the intestinal region marked by a short but distinct longitudinal groove. These characters are not considered to be of generic significance as the second species of *Odiomaris* (Davie & Richer de Forges, 1996), does not have a well developed infraorbital tooth, and the dorsal carapace grooves are poorly defined posteriorly, such that there is no obvious longitudinal groove on the intestinal region.

ETYMOLOGY. Latin *odium*, dislike and *maris*, sea; for the type species' freshwater habitats. Gender masculine.

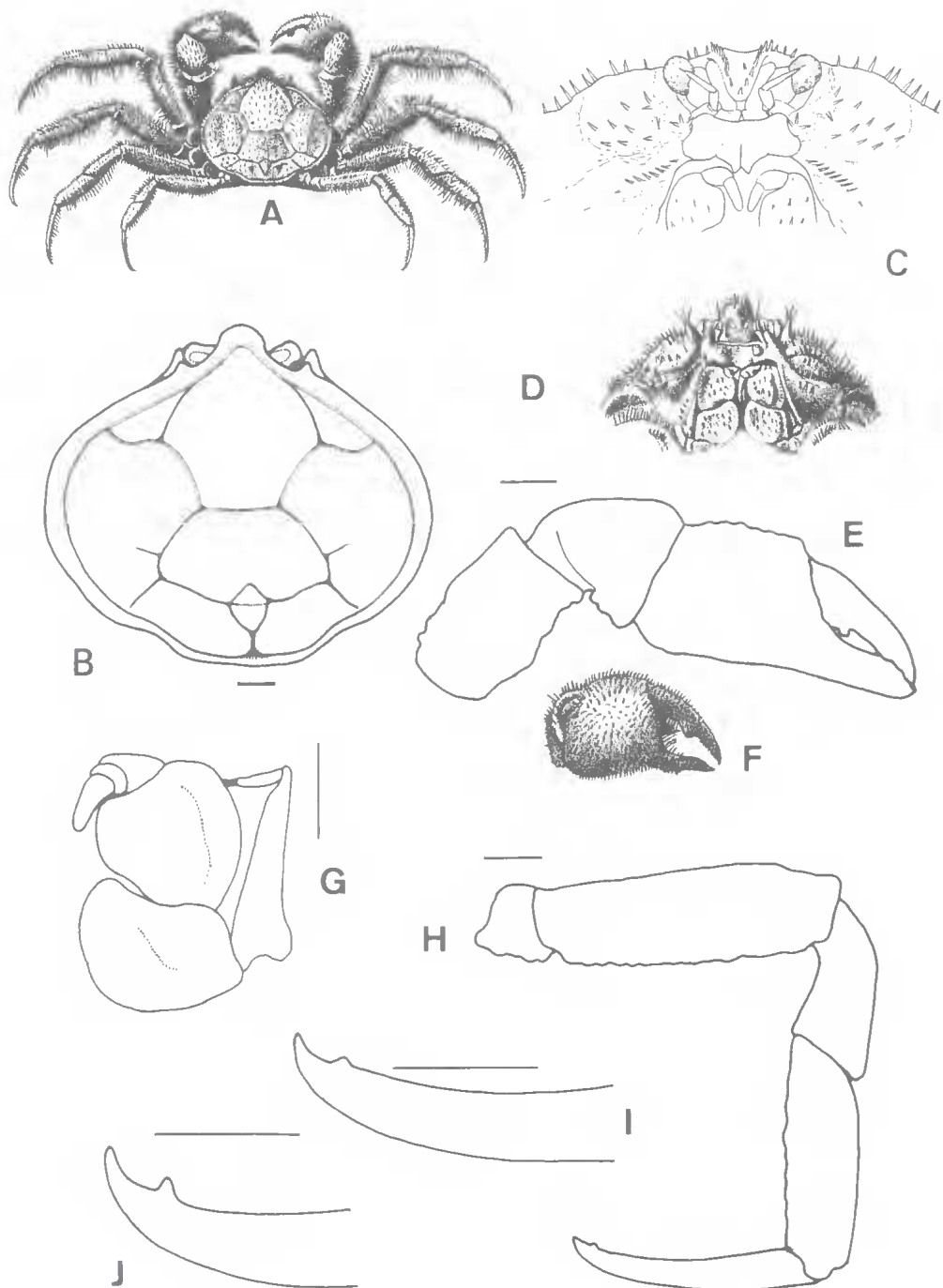


FIG. 6. *Odiomaris pilosus*. A, D, F, ♂ (after Milne Edwards, 1873, pl 18, fig. 6). C (after Holthuis, 1968, fig. 3a). B, E, G-J, ♂ (11.8 x 10.1 mm) (ZRC 1994.4251a). A, overall view. B, dorsal view of carapace. C, frontal view showing epistome. D, front view showing mouthparts. E, right cheliped. F, right chela. G, left third maxilliped. H, right third ambulatory leg. I, right third ambulatory dactylus. J, right fourth ambulatory leg. Scales = 1.0 mm.

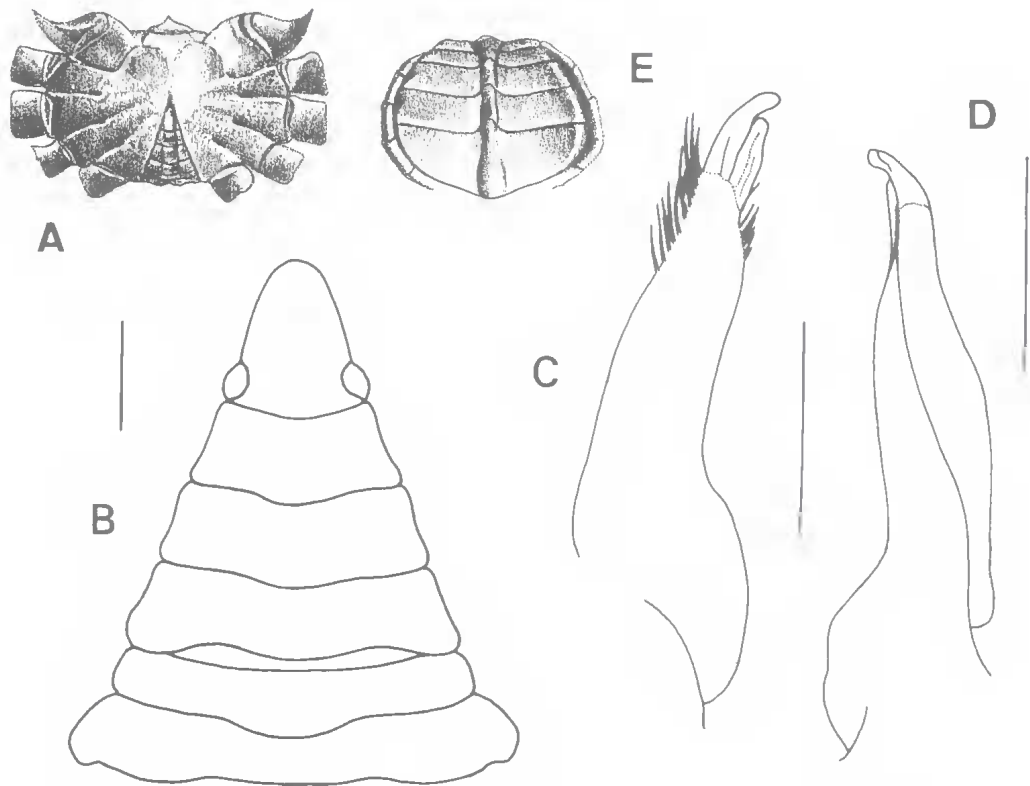


FIG. 7. *Odiomaris pilosus*. A, ♂ (after Milne Edwards, 1873, pl. 18, fig. 6). E, ♀ (after Milne Edwards, 1873, pl. 18, fig. 6). B-D, ♂ (11.8 x 10.1 mm) (ZRC 1994.4251a). A, ♂ sternum and abdomen. B, ♂ abdomen. C, D, left GI. E, ♀ abdomen. C, ventral view. D, dorsal view (sctac not drawn). Scales = 1.0 mm.

***Odiomaris pilosus* (Milne Edwards, 1873)**
(Figs 5-7)

in glutaraldehyde for ultramicroscopic study of the sperm.

Elamene pilosa Milne Edwards, 1873: 322, pl. 18 fig. 6; Kemp, 1917: 247.

Elamena pilosa: Tesch, 1918: 21; Roux, 1926: 229, figs 55, 56.

Halicarcinus pilosus: Holthuis, 1968: 117, fig. 3.

Amarinus pilosus: Lucas, 1980: 198; Chuang & Ng, 1994: 87.

MATERIAL EXAMINED. ZRC 1994.4251, ♂ (11.8 x 10.1 mm), ♀ (8.8 x 7.8 mm), Boghen Rivcr, New Caledonia, 17.1.1993, B. Richer de Forges.

REMARKS. This material agrees with the description and figures of Milne Edwards (1873), Roux (1926) and Holthuis (1968). Roux (1926) and Holthuis (1968) described the short and very stiff setae on the carapace as 'spinules/spines', but in our fresh specimens, they were flexible and not stiff. Thus, we refer to them as setae.

Our ♂ was dissected and its gonads preserved

DISTRIBUTION AND HABITAT. New Caledonia. With *Trigonoplax unguiformis* this is largest of known hymenosomatids. It is common in New Caledonian rivers from the estuary inland for several km, in shallow freshwaters, under or between rocks in areas with rapid currents.

***Elamena* Milne Edwards, 1837**

***Elamena vesca* sp. nov.**
(Fig. 8)

Elamene truncata Milne Edwards, 1873: 323 (junior homonym of *Trigonoplax truncata* Stimpson, 1858).

?*Elamena truncata*: Gordon, 1940: 67, fig. 5; McNeill, 1968: 47; Lucas, 1980: 171, figs 2D, 6D, 8B, 10H.

MATERIAL EXAMINED. HOLOTYPE MNHNB22843, ♂ (6.0 x 5.4 mm), intertidal region,

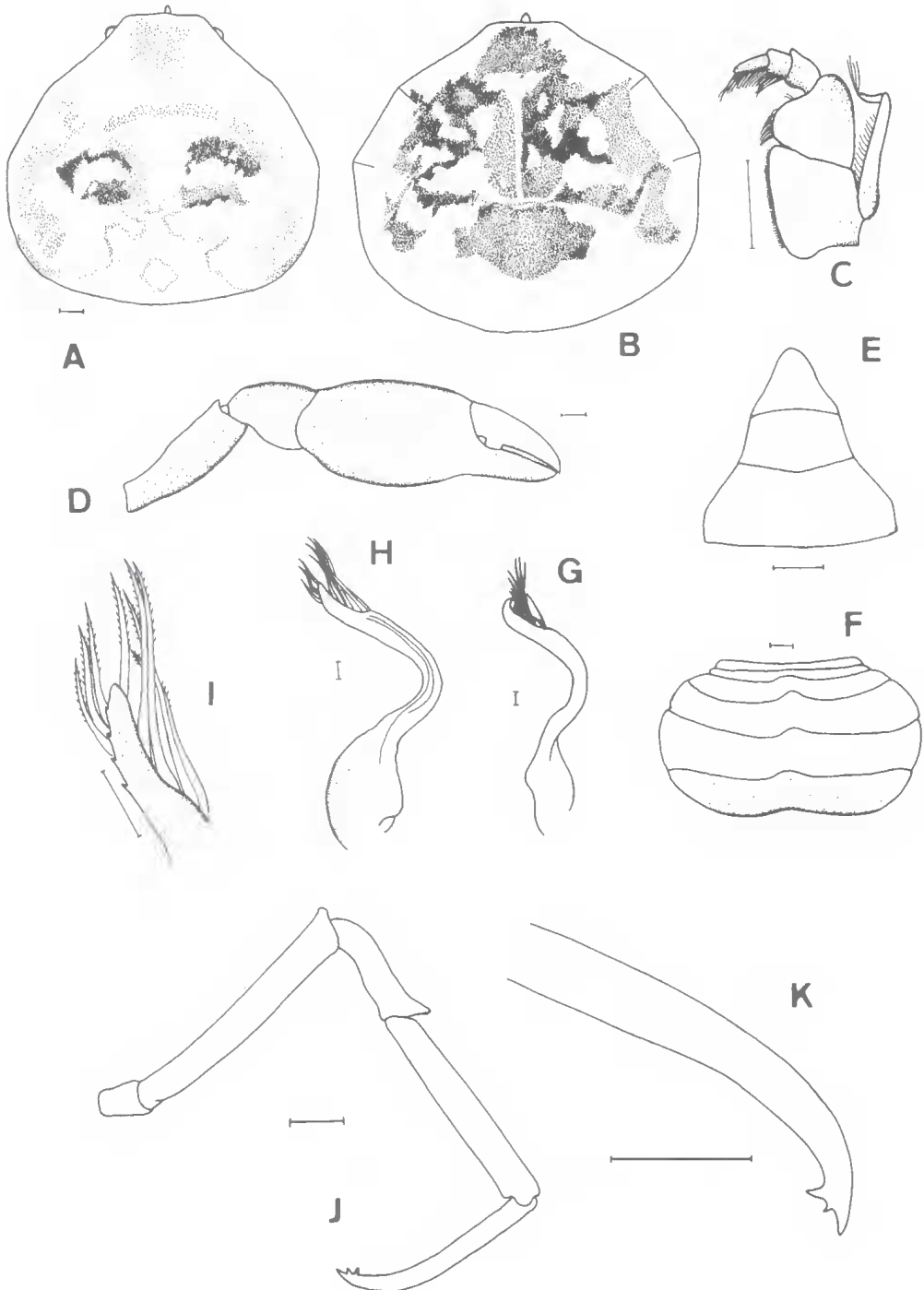


FIG. 8. *Elamena vesca* sp. nov. A, C-E, G-I, holotype ♂ (6.0 x 5.4 mm) (MNHN). B, F, paratype ♀ (7.2 x 6.2 mm) (ZRC 1993.6498). paratype ♀ J, K (7.5 x 6.8 mm) (MNHN), New Caledonia. A, B, dorsal view of carapace. C, left third maxilliped. D, ♂ right cheliped. E, ♂ abdomen. F, ♀ abdomen. G, H, left G1. I, G1 apex. J, right third ambulatory leg. K, right ambulatory leg dactylus. Scales: A-I = 0.5 mm. J, K = 1.0 mm.

low tide at OUEMO, Nouméa, New Caledonia, 2.7.1992, B. Richer de Forges. PARATYPES ZRC 1993.6498-6499, ZRC 1994.4285, 4 ♀, MNHN B22844, ♀, same data as holotype; MNHN, 2 ♂, 2 ♀, QMW, 2 ♂, ♀, ZRC 1996.478, 3 ♂, ♀, Nouméa, Anse Vata, New Caledonia, 18.4.1995, B. Richer de Forges.

DESCRIPTION. ♂: Carapace width (at posterior pair of angular lobes) subequal to length; dorsal surface gently convex, smooth with no distinct or very poorly defined cervical, thoracic and gastroduodenal grooves, with dark brown pigmentation sometimes forming 2 eye-like spots; lobules at anterior lateral angle and at pterygostomian region equally rounded; anterolateral and lateral angles poorly defined, rounded. Rostrum truncated with ventral rostral keel partially visible dorsally. Eyes visible dorsally.

Third maxillipeds cover 3/4 of mouth field when closed; ischium shorter than merus along outer lateral edge; dense short setae occupying entire length of inner lateral edge of ischium; inner lateral edge of merus lined with dense setae, longer than that on ischium; inner lateral margins meeting when closed; palp subequal in length with merus; exopod longer than merus, with long setae more sparse than that found on merus lining the inner lateral edge.

Chelipeds equal, stouter than ambulatory legs; surfaces smooth; fingers c.1/3 length of inflated palm; fingers laterally flattened, slightly curved inwards; cutting edges serrated, with quadrangular tooth at proximal portion of dactylus; tips of fingers sharp, pointed.

Ambulatory legs slender, cross-section subcircular; distinct tooth at distal dorsal edge of merus and carpus; dactylus laterally flattened, straight proximally with distal portion more curved with subterminal tooth; tip sharply hooked; smaller and less distinct tooth in between tip and subterminal tooth; ventral edge of dactylus lined with row of short setae; carpus shorter than propodus and merus which is longer than former.

Abdomen triangular, 5-segmented, segments 3 and 4 fused with no distinct suture; all the other intersegmental sutures distinct; width greatest at proximal end of fused segment; telson subequal in length to segment 5; proximal 1/3 length of lateral edge straight, distal 2/3 progressively concave, sides of telson gently concave and tapering rapidly to slightly rounded tip.

G1 slender, strongly curved, tapering gradually to pointed tip; 8 subterminal setae with spinules spanning 1/2 setal length; 4 subterminal, equally spaced protrusions on left side; distal portion slightly curved; middle portion with 90° turn.

♀: Carapace at posterior lateral angle, broader than long; pigmentation much darker and denser with no distinct spots on dorsal surface of carapace, carapace at anterior and posterior angles raised forming slight ridges (in mature ♀). Abdomen with no fused segments, all intersegmental sutures distinct, covers entire sternum, reaching base of legs, broader than long, tip concave (in mature ♀) or slightly pointed (in immature ♀). Cheliped slender, not stouter than ambulatory legs; fingers spatulate, outer cutting edges serrated, tip of fingers sharp.

REMARKS. *Elamena vesca* sp. nov. cannot be separated easily from *E. truncata* unless adult ♂s are available. Despite many reports of *Elamena truncata* (Stimpson, 1858) in the literature, a clear description is only available from Ng & Chuang (1996). For *E. truncata*, the lateral angles are well marked and distinct, the posterior lateral angle being almost tooth-like, whereas in *E. vesca*, all the angles are more rounded. The fingers of the ♂ chela in *E. vesca* are also proportionately longer than those of *E. truncata*, which has shorter fingers and a more stocky palm. The ambulatory legs of *E. vesca*, especially the dactyli, are also proportionately longer compared to *E. truncata*. The ♂ abdomen of *E. truncata* has a proportionately longer and more rounded telson, and the lateral margins of segment 5 are more strongly concave than in *E. vesca*. The G1s of *E. vesca* and *E. truncata* differ markedly, with that of *E. vesca* being shorter, more strongly bent and the tip curved upwards (almost straight in *E. truncata*) (Ng & Chuang, 1996).

Milne Edwards (1873) described this New Caledonian species as *Elamene truncata*, without figures. He was apparently not aware of Stimpson's (1858) description of *Trigonoplax truncata* from Japan. Kemp (1917: 273) commented '... That both authors have used the same specific name is presumably due to a remarkable coincidence.' The species are in fact different, and Milne Edwards' (1873) name is a junior homonym of Stimpson's. The species is here described as new, using fresh specimens as types.

Australian specimens of *E. truncata* are tentatively referred to *E. vesca* (Ng & Chuang, 1996). The Australian specimens however, differ from *E. vesca* in the ♂ abdomen as well as G1. The ♂ abdomen of '*E. truncata*' of Gordon (1940: 69, fig. 5d) and Lucas (1980: 245, fig. 8B) differ from that of *E. vesca* (Fig. 7E) in having fused segments 3 and 4 longer and the telson longer than segment 5 (subequal in length for *E. vesca*).

Gordon's (1940) ♂ abdomen has a proportionately longer segment 5 and fused segments 3 and 4 compared to that of Lucas (1980). Also the lateral margins of fused segments 3 and 4 are strongly convex in Gordon's figure but only gently convex in Lucas'. The Australian specimens need taxonomic review but are definitely closer to *E. vesca* than *E. truncata* as defined by Ng & Chuang (1996).

DISTRIBUTION AND HABITAT. New Caledonia and possibly Australia. Cryptic, intertidal on rocky shores, in shallow water (about 0.5 m). Our specimens were collected under rocks.

ETYMOLOGY. Latin *vesca*, weak; alluding to the appearance of the species.

ACKNOWLEDGEMENTS

We are grateful to Danièle Guinot (MNHN) and S. Pinkster (ZMA) for loan of specimens. John Lucas and Peter Davie kindly read the manuscript and offered useful suggestions. Christina Chuang prepared figures 1B-G and 8A-F, H, I. The study was partially supported by RP900360 to the first author from the National University of Singapore.

LITERATURE CITED

- CHUANG, C.T.N. & NG, P.K.L. 1994. The ecology and biology of Southeast Asian false spider crabs (Crustacea: Decapoda: Brachyura: Hymenosomatidae). *Hydrobiologia* 285: 85-92.
- DAVIE, P.J.F. & RICHER DEFORGES, B. 1996. Two new species of spider crabs (Crustacea: Brachyura: Hymenosomatidae) from New Caledonia. *Memoirs of the Queensland Museum* 39(2):257-262.
- GORDON, I. 1940. On some species of the genus *Elamena* (s.s.) (Crustacea, Decapoda). *Proceedings of the Linnean Society of London* 152(1): 60-78.
- HOLTHUIS, L.B. 1968. On Hymenosomatidae (Crustacea Decapoda Brachyura) from fresh water, with the description of a new species. *Beaufortia* 15(195): 109-121.
- KEMP, S. 1917. Notes on Crustacea Decapoda in the Indian Museum. 10. Hymenosomatidae. *Records of the Indian Museum* 13: 243-279.
- LUCAS, J.S., 1980. Spider crabs of the family Hymenosomatidae (Crustacea; Brachyura) with particular reference to Australian species: systematics and Biology. *Records of the Australian Museum* 33(4): 148-247.
- LUCAS, J.S. & DAVIE, P.J.F. 1982. Hymenosomatid crabs of Queensland estuaries and tidal mud flats, including descriptions of four new species of *Elaménopsis* A. Milne Edwards and a new species of *Amarinus* Lucas. *Memoirs of the Queensland Museum* 20(3): 401-419.
- MCNEILL, F.A. 1968. Crustacea, Decapoda and Stomatopoda. *Scientific Reports of the Great Barrier Reef Expedition* 7(1): 1-98.
- MELROSE, M.J. 1975. The marine fauna of New Zealand: Family Hymenosomatidae (Crustacea, Decapoda, Brachyura). *Memoirs of the New Zealand Oceanographic Institute* 34: 1-123.
- MILNE EDWARDS, A. 1873. *Recherches sur la Faune Carcinologique de la Nouvelle Calédonie*. *Nouvelles Archives du Muséum d'Histoire naturelle* 9: 155-332.
- MILNE EDWARDS, H. 1837. *Historie Naturelle des Crustacés, Comprenant l'Anatomie, la Physiologie et al Classification de ces Animaux*. Volume 2. Librairie Encyclopaedie de Roret, Paris, 458 pp.
- NG, P.K.L. & CHUANG, C.T.N. 1996. The Hymenosomatidae (Crustacea: Decapoda: Brachyura) of Southeast Asia, with notes on other species. *Raffles Bulletin of Zoology, Supplement* 3, in press.
- ROUX, J. 1926. Crustacés Décapodes d'eau douce de la Nouvelle-Calédonie. In F. Sarasin & J. Roux, *Nova Caledonia* 4: 181-240.
- SAKAI, T., 1938. *Studies on the Crabs of Japan*. 3. Brachygnatha, Oxyrhyncha. (Yokendo Co.: Tokyo), pp. 193-364.
- SERÈNE, R. & UMALI, A.F. 1970. The family Raninidae and other new species of brachyuran decapods from the Philippines and adjacent regions. *Philippine Journal of Science* 99(1/2): 21-105.
- SHEN, C.J. 1932. The brachyuran Crustacea of North China. *Zoologica Sinica (A)* 9(1): 1-320.
- STIMPSON, W. 1858. *Prodromus descriptionis animalium evertibratorum, quae in Expeditione ad Oceanum Pacificum Septentrionalem, a Republica Federate missa, Cadwaladaro Ringgold et Johanne Rodgers Ducibus, observatit et descripsit*. V. Crustacea Ocyropodoidea. *Proceedings of the Academy of Natural Sciences of Philadelphia* 10: 93-110.
- TAKEDA, M. & MIYAKE, S. 1971. Two new hymenosomatid crabs of the genus *Rhynchoplax* from the West and South Pacific. *Researches in Crustacea* 4/5: 1-7.
- TAKEDA, M. & NUNOMURA, N. 1976. Crabs collected by the Melanesia Expedition of the Osaka Museum of Natural History, 1958. *Bulletin of the Osaka Museum of Natural History* 30: 61-92.
- TESCH, T.T. 1918. The Decapoda Brachyura of the Siboga Expedition. I. Hymenosomatidae, Retroplumidae, Ocyropodidae, Grapsidae, and Gercarcinidae. *Siboga Expeditie* 39c(82): 1-148.
- WHITE, A. 1846. Notes on four new genera of Crustacea. *Annals and Magazine of natural History series 1* 18: 176-178.